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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/749,988 | 12/26/2000 | Stephen M. Lord | | 6856 |
| 32092 | 7590 | 01/26/2004 | | |
| STEPHEN MICHAEL LORD | | | EXAMINER | |
| 109 PEPPERTREE LANE | | | LUND, JEFFRIE ROBERT | |
| ENCINITAS, CA 92024 | | | ART UNIT | PAPER NUMBER |
| | | | 1763 | |

DATE MAILED: 01/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

| | |
|-----------------|------------------|
| Application No. | Applicant(s) |
| 09/749,986 | LORD, STEPHEN M. |
| Examiner | Art Unit |
| Jeffrie R. Lund | 1763 |

... The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on _____.
2a) This action is FINAL. 2b) This action is non-final.
3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-19 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
5) Claim(s) ____ is/are allowed.
6) Claim(s) 1-19 is/are rejected.
7) Claim(s) ____ is/are objected to.
8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
10) The drawing(s) filed on 26 December 2000 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) The translation of the foreign language provisional application has been received.
14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) Interview Summary (PTO-413) Paper No(s) _____.
5) Notice of Informal Patent Application (PTO-152)
6) Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the weigh cell of claim 17 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because the same reference characters has been used to designate multiple parts. For example in figures 1a, 2, 3a, 4a, 4b, 5 and 6 all have the same reference numbers i.e. 1, 2, 3, 4, etc, that all describe different parts. Applicant needs to renumber the figures and amend the specification so that the same parts all have the same number and different parts have different numbers. For example, add a 4 prefix to all the reference numbers in figure 4 and a 6 to all the reference numbers. Note that some reference numbers are the same in multiple figures i.e. reference number 1 in figure 1a, 2, and 3a and should be the same in all the figures in which the same part is used. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include reference sign(s) mentioned in the description. The following are given as an example: 17, 8c (page 34); 1a, b, & c (page 35); 8c, 18c (page 38 and 40); 1a,b,c,d,e, & f (page 38); 17 (page 41); 311 (page 42); 313 (page 43); and 5 (page 48). The applicant needs to review the specification and ensure all the reference numbers are found in the drawings. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include reference sign(s) not mentioned in the description. The following is given as an example: 3, 4, 9a, 9b, 10a, 10b, 11, 12, 13, 14, 16 (figure 1a, 2, 3a); 10a-g, 21a-g (figure 1b); 19a, 19b, 20a, 20b (figure 2); 21 (figure 3a); 321, 322, 323, 324, and 325 (figure 3b); and 18 (figure 5). The applicant needs to review the drawings and ensure that all the reference numbers are found in the specification. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
5. The drawings are objected to because figures 1b, 4a, 4b, 5, and 6b contain more than one drawing per figure number. Each individual figure needs to be identified by a single figure number, and not connected by lines. Each section line needs to be identified. The new figure numbers and section lines need to be included in the

specification. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

6. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

7. The abstract of the disclosure is objected to because the abstract is to long.

Correction is required. See MPEP § 608.01(b).

8. The disclosure is objected to because of the following informalities:

- a. On page 5 lines 27-30 the following terms are used: ppma, ppba, and ppta. The examiner understands the ppm, ppb, and ppt but does not understand what the "a" is.
- b. On page 9 line 17 "4,207360" should read --4,207,360- and line 21 "could not sold" should read --could not be sold--.
- c. On page 33 line 11 "Figure 1" should read --Figure 1a--.

- d. On page 35 line 11 "stream11" should read --Figure 1a--, "purity(less" should read --purity (less--.
- e. On page 26 delete second ":".
- f. On page 42 line 16 after "heater", --322-- should be added, and line 19 after "heater", --323-- should be added.
- g. On page 43 line 24 "plug" should read --plug in--.
- h. On page 47 line 9 "coils,2,3 &4," should read --coils, 2,3, & 4,- -.
- i. On page 48 line 20 and page 50 line 13 "Fig 6" should read --Fig 6a--.
- j. On page 49 line 9 "tubes17" should --tubes 17--.

Appropriate correction is required.

Claim Objections

- 9. Claim 3 is objected to because of the following informalities: 1st and 2nd should be spelled out i.e. first, second. Appropriate correction is required.
- 10. Claim 6 is objected to because of the following informalities: 1st and 2nd should be spelled out i.e. first, second, "aforesaid" should be deleted, and in line 12 "group" should read --group,--. Appropriate correction is required.
- 11. Claim 12 is objected to because of the following informalities: 1st and 2nd should be spelled out i.e. first, second, "prior" should be deleted, and in line 12 "group" should read --group,--. Appropriate correction is required.
- 12.
- 13. Claim 16 is objected to because of the following informalities: in line 9 after "tetrabromide,", --or-- should be added. Appropriate correction is required.

Claim Rejections - 35 USC § 112

14. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

15. Claims 8, and 14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In claim 8, no specific flow control was described in the specification.

16. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

17. Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Claim 1 requires both "a mechanism that pulses silicon granules back and forth between the heating section and reaction sections" and "at least one separate injection means for injection nonsilicon containing gases", these are the same part in that the mechanism that pulses silicon granules back and forth is the pulsing non silicon containing gases. The examiner recommends adding

--wherein the mechanism includes at least one separate injection means for injecting non silicon containing gases into the heating section-- and deleting "at least one separate injection means for injection nonsilicon containing gases".

- b. Claim 1 does not disclosed the location of the "at least one separate injection means for injecting silicon containing gases". The examiner recommends adding --into the reacting section--.
- c. Claim 2 requires "a heater section, a reaction section, a granule pulsing mechanism, a separate gas injection means for injecting silicon containing gases, a separate injection means for injecting non silicon containing gases and a heating means", it is not clear if these are the same as those claimed in claim 1, or if the machine requires 2 heating sections, 2 reacting sections, 2 silicon containing gas injection means, 2 non silicon gas injection means and 2 non-silicon gas heating means. The examiner recommends rewriting claim 2 to read:

2. A machine of claim 1 further including at least one additional stage connected above the reacting section and containing a second reacting section, a heating means, and one or more gas injection means.

- d. Claim 3 does not claim a structure, it claims a method step i.e. "the recovery of heat form the granules..." the claim should be rewritten to include a structure or as a means i.e. a means for recovering heat from the granules by direct contact with a high purity gas.

e. Claim 3 is not clear if the claim requires a gas from the first group and a gas from the second group, or a gas from the first group or from the second group.

f. Claims 3-5, 10, 13, and 17 contain a broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). The phrase "even more preferred option" should be deleted.

g. Claim 8 does not claim a structure, it claims a control method. Claim 8 should be amended to read:

8. A machine of claim 1 further comprising an external flow control means for controlling flow to each of said injection means, select from a group consisting of: a means for direct flow control of each said injection means,

a means of indirect flow control by a flow distribution device, or a combination of the two where some of the said injection means are ganged in groups.

- h. Claim 10, the term "even more preferred option" should be deleted. Claim 10 requires "one or more separate injection means" and "multiple separate flows". It cannot be one and multiple at the same time.
- i. Claim 14, the phrase "most preferably resistance heaters is indefinite and should be deleted.
- j. Claim 16, the phrase "may be" is indefinite because it is not clear if the limitation is required or not. The phrase should be changed to is. The claim does not claim a structure, it claims a method, the claim should be amended to include a structure, i.e. a means of supplying an etching gas.
- j. Claim 19, the phrase "the second" and "the first stage reacting section" lack antecedent. Claim 19 should be amended to read:

19. A machine of claim 2 where at least one of the at least one additional stage contains some residual silicon dust and/or silicon containing gases that form a wall deposit.

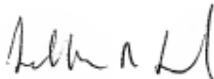
Allowable Subject Matter

- 18. Claims 1-19 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.
- 19. The following is a statement of reasons for the indication of allowable subject matter: the machine for production of granular silicon as claimed in claim 1, specifically,

a heating section located under the reacting section, a mechanism that pulses the silicon granules between the heating section and the reacting section, the mechanism including a non silicon containing gas injection means that injects the non silicon containing gas into the heating chamber, a silicon containing gas injection means for injecting the silicon containing gas into the reacting section, and a heating means to heat the non silicon containing gas was not found in or suggested by the art.

Conclusion

20. The Examiner invites the Applicant to call him with any questions regarding this action.
21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited art teaches the technological background of the invention.
22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrie R. Lund whose telephone number is (571) 272-1437. The examiner can normally be reached on Monday-Thursday (6:30 am-6:00pm).
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (571) 272-1439. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



JEFFRIE R. LUND
PRIMARY EXAMINER